With the Author's Compts

REMARKS
ON
THE RAPID TRANSMISSION
OF
TROOPS TO INDIA,

AND ON THE PRACTICABILITY OF PROMPTLY ESTABLISHING
EFFECTUAL MEANS OF CONVEYANCE BETWEEN THE
SEA-COAST AND THE INTERIOR BY THE

NAVIGATION OF THE GREAT RIVERS BY STEAM,

WHEREBY THE FORCES OF ENGLAND AND OF INDIA WOULD
BE ENABLED TO GIVE EACH OTHER MORE EFFECTUAL
MUTUAL SUPPORT.

BY JOHN COCHRANE HOSEASON,
COMMANDER, R.N.

Dedicated to
LIEUT.-GENERAL SIR DE LACY EVANS, G.C.B., M.P.

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TO

LIEUT.-GENERAL SIR DE LACY EVANS,

G.C.B., M.P., &c. &c.

THE FOLLOWING PAGES ARE

Dedicated,

IN THE HOPE THAT THEY MAY BE FOUND SERVICEABLE
IN IMPARTING INFORMATION UPON THE IMPORTANT
SUBJECT WHICH HE HAS SIGNIFIED HIS INTENTION OF
BRINGING UNDER THE CONSIDERATION OF
PARLIAMENT.

TRANSMISSION OF TROOPS TO INDIA.

INTRODUCTION.

The following Letters illustrative of the causes of the deficient promptitude in the transmission of troops to the seat of war in India, are reprinted for general information. There is not a man, woman, or child, in the whole country, who does not perceive that there has been a lamentable want of efficiency in our arrangements upon this head; and, instead of elaborate apologies for the existence of such inefficiency, what the nation wants is, that the fault shall be fully investigated and effectually corrected. England is essentially a commercial nation. If there is anything which her people understands better than another, it is how to move with cheapness and despatch large numbers of persons, and large quantities of cargo, from one part of the globe to another. When therefore such a duty is undertaken by the Government, there is a very wide circle of spectators able to judge whether it is well or ill performed, and it is vain to expect that such competent judges can be deceived or satisfied by the weak platitudes or smart repartees of any minister, however adroit in the use of all the approved expedients of mystification. When people thoroughly understand the subject under dispute, the artifices of rhetoric wholly lose their force; and no amount of persuasion will induce men to believe that troops have been transmitted with the utmost possible expedition to those situations in India where their presence is so much required, when they know and feel that they themselves could have forwarded them much more expeditiously if they had had the task to perform.

Of all the causes, however, which have interfered with the rapid transmission of troops and stores to the seat of war, the most serious is that which is encountered in India itself, from the want of means of internal conveyance. It will be but of little avail that we put into requisition every other expedient to precipitate our reinforcements upon the coast of India with the least possible delay, if when we have them there we cannot carry them into the interior from the want of effectual means of internal communication. The reply of the East India Company to this obvious truth will no doubt be, that it has for some years past been devoting its attention to the construction of railways, which, when completed, will remedy the defect. But a moment's consideration is sufficient to show the hollowness and inadequacy of this apology. Admitting for the moment that railways will accomplish the objects anticipated, the very simple question arises, when will they be so far advanced as to be of any sensible benefit in this particular? It is now ten or twelve years since the principal Indian railways were sanctioned, and what length of line is yet open for traffic? A reference to the map, which accompanies this pamphlet, will show that the length of railway at present completed is quite insignificant. The great rivers, however, are *made already*, and only require the introduction of suitable steam vessels upon them to become immediately great and effectual arteries of steam communication. Why, then, has the East India Company overlooked this valuable auxiliary for present purposes, even if it should be eventually superseded by the railways? This hypothetical supercession, however, can never occur. In a country like India, which may at any time become the theatre of internal commotion, it is not safe to trust to railways alone as the means of maintaining the communications open between the coast and the interior; for it is quite obvious that a railway may be temporarily disabled by the removal of some of the rails, and by the demolition of some of the viaducts. A railway under such circumstances is a less safe dependence than a common road. But the great rivers being incapable of being stopped, damaged, or extinguished, will afford means of uninterrupted communication, even under the worst contingencies which can arise; and their effectual navigation thereof must under all circumstances be a proper object of solicitude to the ruling power. It so happens, however, that the very expedients of communication which are the safest reliance during war, are the most valuable expedients for advancing the peaceful purposes of commerce. The internal communication which it is necessary to maintain in India, to enable the produce of the interior to reach a port of shipment, is not that species of refined, rapid, and costly communication which it is the function of railways to maintain, but a communication of the cheapest possible character, and with a moderate rate of speed, such as the rivers, if navigated by suitable steam vessels, would at once afford.

Now, if these views are just — if it be the fact that, whether reference is made to the military or the commercial wants of India, the navigation of the rivers is the most exigent requirement of all the expedients of internal communication which has yet been presented — it is right that the public should know with whom rests the blame of having so long neglected or impeded this important improvement, and what reasons for this neglect or opposition can be assigned. Colonel Cotton, late chief engineer of Madras, and other engineers of eminence, have been urging upon the East India Company the importance of widely establishing steam navigation upon the rivers of India for many years. Colonel Cotton has proved, most conclusively, that water conveyance is cheaper than any possible mode of conveyance by land, and is therefore best adapted to the circumstances of India, where large quantities of commodities require to be carried through long distances at a small expense. But some sinister influence has been at work to turn the current of the East India Company's patronage exclusively upon railways, and to discourage and impede the navigation of the rivers, which has been regarded as a species of antagonism to the railway interest. And what has been the result of this narrow and unscrupulous policy? Spite of all Lord Ellenborough's warnings, when our troops arrived in India no effectual means of carrying them into the interior were available, and great delay, expense, and discomfort, have consequently been incurred. Nor is this the heaviest part of the evil; for it must be clear to every one, that if steam vessels of an effectual character had been widely established upon the Indian rivers some years ago—at which time the East India Company was pressed to establish them—means of escape would have been provided for the women and children who have been foully murdered; and upon those who resisted this measure of improvement, must therefore rest the odium and heavy moral responsibility of having been accessory to the shedding of this innocent blood.

The rivers of India, though shallow during the dry season, can be navigated to points far up into the interior, during every part of the year, by steam vessels of a light draught of water; and if those vessels are of a suitable construction, they will be able to carry large quantities of cargo. The portions of the rivers which are ascertained to be navigable throughout the year, are coloured blue in the map, and it will be seen that the whole of the great rivers and their principal tributaries are navigable throughout nearly the whole of their length. Upon the Ganges, there are a few Government and other steamers plying between Calcutta and Allahabad, and there are also a few Government steamers upon the Indus, which ply between Kurrachee and Moultan. But these steam vessels are so inefficient in themselves, and so inadequate in their numbers, that the navigation by steam of these fine rivers is practically undeveloped, and no adequate facilities in the conveyance of troops or merchandise are afforded. It is only by bringing English science and energy to the accomplishment of the task, that the rivers of India can ever be navigated in an effectual and practically useful manner; and it is with the East India Company that the onus lies of bringing about this highly important result. The thing proper to be done is quite well known. It has often been pointed out, and its eminent importance demonstrated. Scarcely any movement, however, in the right direction has yet been made, and it remains to be seen whether a parliamentary investigation will not operate as a remedy against that passive resistance and supineness, which all other suasories have been unable to overcome.

There has been an erroneous impression generally entertained with regard to the overland route to India; many, both in that country and in England, having imagined that Government could have despatched at an earlier date, for the relief of India, a very large force *viâ* Suez. But such parties evidently lost sight of the fact, that although any amount of troops might have been conveyed from England to Alexandria, yet the ordinary bi-monthly steam-packets, the only means then at our command, would have proved utterly inadequate to convey them from Suez to Calcutta. The Government of India having neglected to order steamers to proceed to Suez, in anticipation of such plan being adopted, and no electric telegraph being in operation, ninety days must necessarily have elapsed ere any arrangements could have been carried into effect, consequent on any such instructions from home. The mutiny was known in England about the 27th of June. The first steam vessel left Southampton on the 4th of July. Notification of the fact, that the home Government intended to avail themselves of the Suez route, could only have reached Calcutta by the middle of August. Steam vessels then despatched from Bombay and Calcutta would have had to perform the voyage to Suez, against the S.W. Monsoon, and also to return to India. This, irrespective of any lengthened detentions for coaling, &c., would occupy about ninety days; and before such period the troops despatched from England *viâ* the Cape of Good Hope, had commenced arriving at Point de Galle and Calcutta.

Small detachments of from 200 to 300 men could only have been forwarded by the bi-monthly steamers, or such numbers as could share the accommodation not only with the general passengers, but also with the large body of military and civilians belonging to the East India Company, who, in consequence of the outbreak, were ordered to return with all despatch to the East.

Nothing can be more complete than the present arrangements with the Peninsular and Oriental Company. But this has taken time in its organisation, and clearly demonstrates the necessity of maturing our plans during peace, if we would place the country in an efficient position on the first outbreak of a war.

LETTER I.

THE TRANSPORT OF TROOPS TO INDIA.

In a late debate in Parliament on the conveyance of troops to India, the First Lord of the Admiralty, Sir Charles Wood, is reported to have said, in reply to Admiral Sir Charles Napier, that he could not have been expected to keep in the Government depôts sufficient coal to meet any emergency like the present, and that all the Admiralty could be expected to do was to provide fuel for ordinary occasions. It is, however, demonstrative that such views must be erroneous, and they can never be entertained without resulting in the greatest possible injury to the public service; for to what purpose has this country entailed upon itself such a heavy public expenditure during peace, if all is to be rendered nugatory at the first outbreak of war, from the impossibility of putting into immediate motion our vast naval and mercantile steam fleets? The Parliamentary abstract, from the year 1842 to 1856 inclusive, informs us that no less a sum than 133,000,000*l.* has been voted to perfect our naval service, whilst from 800,000*l.* to 1,000,000*l.* annually has been granted during the same period, in subsidies, to establish in an efficient manner our great mercantile steam lines. But what immediate advantages did this country derive from such vast outlay in the late war with Russia? And what are we now likely to benefit from it in expediting our operations in India and China? With a Parliamentary list of 1,600 steamers of all sizes and horse-power, we were made painfully sensible of the fact, that we were obliged, in the late war with Russia, to despatch the *élite* of our cavalry and artillery by sailing vessels to Constantinople, and that the first 42 of these ships took 34 days to reach Malta, a distance of only 2,132 miles from England, and during that tedious voyage a large portion of the cavalry and artillery horses were rendered ineffective; whilst, at a later period, an entire regiment of cavalry, 400 strong, was conveyed in 12 days by steam, from England to Varna, a distance of 3,300 miles, without the loss of an animal, or even distress to the horses. That there was no lack of steamers for this service, all those acquainted with the facts of the case must be fully aware; but it was useless to engage them, there not being coal sufficient in the depôts on the route. Endless discussions have been raised as to the proper position in the vessel in which the horses should be placed, when it ought to have been known that speed through the water imparts steadiness to a vessel, and consequent ease and comfort to the animals.

Operations, however, conducted in the Mediterranean and the Black Sea, may be efficiently executed by a class of vessels that it would be idle to despatch from England to perform a rapid voyage to Calcutta. The distance of Constantinople from England is comprised in three easy stages—England to Gibraltar, 1,151 miles; Gibraltar to Malta, 981; and Malta to Constantinople, about 830; each station offering great facilities for rapid coaling. The case is far otherwise in a steam voyage to Calcutta; and from my own experience of steam navigation in those seas, I always predicted a total failure, in a mercantile point of view, in the efforts made to open a steam communication with India, *viâ* the Cape of Good Hope, by auxiliary screw-vessels, and the results have fully verified my worst anticipations. But for military purposes, and by the employment of large and full-powered steamers, it is clear that, with efficient coaling establishments, the entire distance may readily be accomplished under 50 days. The distance from England to the Cape of Good Hope, *viâ* Sierra Leone, is 6,100 nautical miles. Sierra Leone being about midway, or about 3,000 miles from England, the mere steaming would easily be accomplished by the superior class of the Cunard and the Royal West India mail-steamers in 23 days. The Mauritius, the next stage, is 2,278 miles from the Cape, and Calcutta 3,200 miles from the Mauritius, making the total distance by this route 11,578 miles. There are now lying before me 93 of the outward and homeward voyages of the Cunard and Collins line of steam-boats, and I observe that 11¼ knots per hour is the mean average speed obtained in the turbulent ocean of the North Atlantic. The distance from Liverpool to New York being about 3,000 miles, taking the same average speed as that accomplished by these boats it is evident that the mere steaming from England to Calcutta would be performed in 43 days. With well organised coaling establishments, and abundance of labour, such as can readily be obtained at Sierra Leone, Table Bay, and the Mauritius, 40 tons of fuel per hour may easily be taken on board. This gives in 24 hours 960 tons; therefore three days ought to suffice over the entire route for any detention caused by coaling, but seven days might be spared for that purpose, and yet the passage be secured in 50 days.

Sir Charles Wood is reported to have stated in the same debate, that the mean average speed of the four best steamers employed in the postal service from England to Calcutta was 104 days, whilst the sailing vessels at this time of the year accomplished the voyage in 95 days. It would have been more conclusive had Sir C. Wood produced to the House of Commons the mean average speed of all the General Screw Steam Company's vessels between England and Calcutta, for ten vessels were, I believe, employed on that service for a period of two years; and there would have been no difficulty in supplying such data, as naval officers were invariably despatched in charge of the mails, and they must have forwarded to the Admiralty, in the ordinary routine of duty, letters of proceedings, which must be in the records of that office. Other members of the House of Commons objected to the data given by Sir Charles Wood, and stated the mean average speed of the sailing vessels to be 131 days, and that of the screw steamers 95 days; but this evidently must be an average deduced from all the sailing vessels, of whatever build, tonnage, or class of vessel, and not an average obtained from the voyages of large clipper sailing ships, which class of vessel should be alone selected by the East India Company for the conveyance of the troops to India when sailing vessels are employed.

During a discussion in the Institution of Civil Engineers, some three or four years since, it was admitted that, from the increased size of sailing vessels on these lengthened voyages, apart from any other consideration, increased speed had been obtained—the smallest vessels taking 133 days from Liverpool to Australia, the larger 90 days—a saving due to increased size of 43 days. Were a large full-powered steamer of 3,000 tons burthen to convey 1,500 officers and men of the Queen's army for service in India, and to accomplish the voyage in 50 days, there would be a saving in time over the sailing vessels, as shown by Sir Charles Wood, of 45 days, and over the auxiliary screw steamers of 54 days. If, for simplicity's sake, we take 2*s.* as the cost of the pay and provisions for the maintenance of each of these 1,500 persons each day, we have a charge of 150*l.* a-day as the loss to the East India Company for every twenty-four hours they are detained at sea; the Company actually paying that sum, or even more, for the services of troops that are thus rendered useless to either Government.

Forty-five days saved over the sailing vessels . .	£6,750
Fifty-four days saved over the auxiliary screw steamers	8,100

an amount about equal to defray the entire cost of the fuel for the voyage. But a further saving is shown on the amount paid for freight by a comparison of vessels of 3,000 tons burdens:—

Sailing vessel at the rate of 30*s.* a ton per month, and for 95 days	£14,250
Auxiliary screw steamer at 50*s.* a ton per month, for 104 days	26,000
Full-powered Cunard steamer, 50*s.* a ton per month, for 50 days	12,500

The data for the above computations are taken from the price paid for the sailing and steam transports during the late Russian war. This argument is confined to the discussion of the route to India; but the value of Sierra Leone, Table Bay, and the Mauritius, as coaling depôts for the route to China, is equally apparent. The Mauritius ought to be considered as the great pivot of all our operations in the Indian and China Seas.

Expending enormous sums for the maintenance of a naval and mercantile steam fleet, and yet neglecting to organise efficient coaling establishments, can be likened only to the folly of a man who should order a valuable gold watch with jewelled holes, and yet demur to the cost for the main-spring required to give life to the whole.

If our vast empire of India is saved to this country, it must be apparent to the most superficial observer how little we owe to our own foresight, and how much to Providence. It was but the fortunate conclusion of the Persian war that enabled a regiment of British troops to arrive at Calcutta within three weeks after the outbreak in India, and the opportune arrival of our forces intended for China at Singapore, which enabled them to be diverted for the same object. A late writer in the *Times* says —" What would the nation give at the present critical moment to bring India 1,000 miles nearer this country! " and yet it must be evident to any person the least conversant with steam navigation, that there has been no period during the last six years that we might not have brought it, for all military purposes, at once 5,000 miles nearer.

The entire absence of all organisation of coal depôts, and the utter neglect to provide suitable vessels for the navigation of those distant seas, has for years been painfully apparent. A continued neglect to reduce to a system our means of communication may yet lead to more fearful disasters, should ever concurring interests unite the forces of France and America in arms against this country. Whether this union for a common object may ever occur, I do not attempt to predict; we have but lately, however, brought to a close a great war with Russia, which was neither foreseen nor provided for. It has been said that " England is at present in conflict with the Eastern world. From Aden to Hong Kong the British flag has been unfurled, and at various spots throughout this great section of the globe the inhabitants of these little islands are actually engaged in hostilities with well-nigh one-half of the human race." With this state of things, equally unforeseen and unprovided for, surely it will be but an act of common prudence to organise, whilst we have yet time, great military lines of communication between England and her distant settlements.

John Cochrane Hoseason,
Commander, R.N.

LETTER II.

THE TRANSPORT OF TROOPS TO INDIA.

In the debate on the military preparations for India, Sir De Lacy Evans is reported to have directed the attention of the government to a plan, identical with that published by me for the transport of troops to India. The gallant general is reported to have said: "He understood from the best informed authorities, that coaling stations ought to be established at Sierra Leone, the Cape of Good Hope, and the Mauritius, each of which were about 3,000 miles asunder," and added, that "if government adopted such route, they would practically shorten the distance between England and India some 3,000 or 4,000 miles." I am therefore induced further to direct the attention of the public to a few more facts, not generally known or appreciated; for, having run over the entire route to India and China in command of one of her Majesty's steamers, and having carried out an elaborate series of experiments in those seas, over a distance extending to 50,000 or 60,000 miles, I am enabled to speak with a confidence confirmed by experience.

You will have observed that for the line proposed, I named vessels of about 3,000 tons burthen, such as are to be found already constructed and running in the Cunard and Royal West India Mail Service, so that immediately on the coaling establishments being organised, which they ought to be in a few weeks, the proper vessels could be selected, and placed upon the line.

Larger vessels are relatively cheaper than smaller vessels to the government, for one vessel of 3,000 tons burthen will carry more, and run faster, *cæteris paribus*, than any two vessels of 1,500 tons burthen; but I must not be supposed to infer that vessels of half the tonnage proposed could not be employed with advantage upon the lines should there be a deficiency of those best adapted for the route, though care must be taken to select such vessels as are equal to maintain a high average speed while steaming against the south-east winds, which are nearly certain to be encountered as the steamer approaches the Cape of Good Hope.

It is evident that the less number of coaling depots required the more rapid will be the voyage, for there will be less time lost by detention. The stations pointed out are about 3,000 nautical miles distant from each other, or the same distance so punctually performed by the Cunard boats running between Liverpool and New York. You will have observed that no allowance was made for the increased speed of these boats when placed on the route to India, although the least informed must be aware of the fact, that whilst the North Atlantic is the most turbulent ocean in the world, the route proposed *viâ* Sierra Leone, along the coast of Africa to the Cape of Good Hope, is about the smoothest and finest one that can be selected for a steamer.

With respect to the coaling arrangements necessary to expedite the voyage, it will be observed that all the coaling stations named are on our own territories, and therefore subject to our immediate control—an important feature during war; and that the population of these places is sufficiently dense to admit of an ample command of labour. This is a point of the greatest importance to keep in view in the selection of a coaling station; for no steamer's crew is large enough to furnish working parties to coal a vessel at the rate of 40 tons an hour for twenty-four consecutive hours. It is the abundance of labour obtainable at Malta, and at the several coaling stations belonging to the Peninsular and Oriental Company, over the entire route to India and China, that enables them to take on board four and five hundred tons of fuel in a single night; and it is the same admirable arrangements and facilities at Jamaica which enable the large American steamers, running between New York and the Isthmus of Panama, to coal with equal despatch. To organise efficient coaling establishments is of the utmost importance, for we lose all the advantages to be derived from a steam communication if we waste time in port; and the organisation of such establishments can be effected at small cost to the country. A steam transport conveying troops need never be in want of labour for hoisting the fuel into the vessel, for the captain ought to be authorised to pay the men for such services. It must not be lost sight of that liberality in this respect is sound economy, for I proved in my last letter that every twenty-four hours' detention in harbour of a vessel of 3,000 tons burthen will be a loss to government, in pay and provisions to the men, and freight for the hire of the steamer, of 400*l*. Thus, irrespective of the value of time in the case of war, we here perceive the enormous sacrifice of money consequent on the neglect in the organisation of the coaling establishments.

It surely needs little demonstration to prove that there must be something radically wrong in our arrangements, if, after the expenditure of 133,000,000*l*. for naval estimates since 1842, and some ten millions to our great Mercantile Steam Companies, during the same period, we cannot convey so insignificant a force as 30,000 men, with the requisite munitions of war, in 50 days to Calcutta. Unfortunately this state of things has long since been foreseen and foretold. During my two years' service in the Indian and China Seas, the supply of fuel was never adequate to the wants of our then small steam squadron. The government steamers were all trusting to inefficient and precarious supplies, borrowing or endeavouring to purchase fuel from the Indian government, the Peninsular and Oriental Company, and private parties, with no really effective organised depôts to be found in India or China. Since that period, viz., 1848 and 1849, our navy has become one vast steam fleet, without any consideration being evinced for the supply of fuel necessary to utilise their services.

If the East India Company find fuel for our government, as they have heretofore done at Bombay, Point de Galle, Madras, and Calcutta, we ought surely to provide coal for them at Sierra Leone, the Cape of Good Hope, the Mauritius, and Trincomalee; and for the China route at Singapore and Hong Kong. One staff and one organisation would suffice at each station, for the common benefit of both. I am now referring more particularly to our present emergencies for the war in India and China; but prudence and common foresight will dictate the adoption of one general system and organisation over every quarter of the globe. Professional experience is required in the selection of stations, and in apportioning the quantity of fuel to each depôt. Unfortunately, the war with Russia had no sooner terminated than all our difficulties and disasters were forgotten, and the dear-bought experience, which we purchased at an enormous sacrifice of life and money, was lost to the country.

Sir Charles Wood spoke with apparent satisfaction of the voyage of the "Himalaya," from England to the Cape of Good Hope, and seemed to congratulate the country on the fact, that she had been beaten two days by the "Transit,"—the latter taking forty-four days to reach the Cape of Good Hope, and the "Himalaya" forty-six. Surely it was no solid ground for satisfaction that for want of adequate coaling establishments and the adoption of a proper route, the steamer was made to lose twenty days of valuable time on her voyage to China. All the papers teemed with the performances of this steamer during the Russian war. She accomplished the voyage from England to Varna in twelve days, with an entire regiment of cavalry on board, landing them in the highest state and condition, and during the war she conveyed upwards of 2,000 souls in a single trip. The distance from England to Varna is 3,300 miles, or more than one-half the distance of England from the Cape of Good Hope ; therefore, taking her own performances on a previous occasion as our guide, it is clear that she ought to have reached the Cape in twenty-six days with ease, allowing even two days for coaling at Sierra Leone.

Sir Charles Wood must have been totally misinformed, when he led the House of Commons to imagine that the present was a favourable time to despatch sailing vessels to India and China. Had he consulted Wise's admirable analysis of one hundred voyages of the East India Company's ships to and from India and China, he would have discovered that it was not then usual to despatch vessels from England in July and August; and apparently for the very simple reason, that the trade-winds and monsoons are not favourable for a rapid voyage in that period of the year. A table is also given, showing the average number of days occupied by the Honourable Company's ships in performing passages to and from the principal ports in India, during the different periods of the monsoons, constructed from fifty journals, and extracted from Horsburg's Directory, where it is stated that the north-east monsoon commences in October, about the very period that vessels despatched from England in July and August will arrive in the Indian Seas, and find the monsoon against them both in the Bay of Bengal and on the voyage from Singapore to Hong Kong. It is therefore most important that directions should be sent *viâ* Suez, to increase our coaling establishments at Trincomalee, and that the officer in command of the steam squadron in those seas, should despatch suitable vessels to cruise in the entrance of the Bay of Bengal, or even as far as the equator, to tow up the sailing vessels becalmed or baffled by light winds. Early in October, the north-east monsoon is very light, and to economise fuel a steamer might tow a large clipper-built vessel, even on two out of her four boilers, at the rate of seven knots an hour. I observe, by reference to my journal, that on the 30th September, 1848, I towed her Majesty's brig "Ring-dove" out of the harbour of Trincomalee, and well out to sea, at the rate of seven and a half to eight knots an hour, on two out of the four boilers. On October 1st, I sailed for Madras, with two companies of her Majesty's 25th regiment on board, and steamed on two boilers, using the fourth, fifth, and sixth steps of expansion, and thus obtaining ten miles for every ton of coals. Early on the 3rd of October, we anchored in Madras Roads. On the breaking out of the Punjaub war, I again left Madras on the 17th October, with a light monsoon against us; towed the "Claudine," a heavy teak-built merchant vessel, at the rate of eight and a half nautical miles an hour on four boilers, and beat, with this vessel in tow, the East India Company's steamer, "Fire Queen," twenty-seven hours, in a run of four days and a half. We experienced an adverse current of from twenty-five to thirty-two miles a day, and spoke a small vessel in the Bay of Bengal that had been becalmed for three weeks. We landed the 28th Madras Native Infantry at Khyouk Phyoo, and embarked the 40th Bengal Native Infantry, and sailed again with the "Claudine" in tow for Calcutta, towed her eight knots on three boilers, and anchored off Fort William on the 29th, having thus taken only twelve days, inclusive of detentions in port, to move 1,400 men and their baggage 1,400 miles. A native officer of the 28th informed me that he had been engaged in the last Burmah war, and that the sailing vessel in which he had been conveyed from Madras took six weeks to perform the same voyage which was executed by the "Inflexible" with the "Claudine" in tow in four and a half days. These simple facts will suffice to prove what serious detentions sailing vessels may be subject to in the Bay of Bengal during the north-east monsoon.

The Duke of Newcastle directed the attention of government to the injurious effects of a further subdivision of authority with the Court of Directors and the Board of Control in the movement of her Majesty's troops to India, his grace declaring that his experience had satisfied him that all power ought to be concentrated in one person, and that person the Minister for War. The evident injury to the public service of throwing this duty upon the East India Company will be evident, when it is remembered that by such act we sacrifice our chief advantage, for which we have been paying millions in subsidies to our great steam companies; for if this operation had been undertaken by the home government, they could, by the terms of the postal contracts, command at a fair market value the services of every steamer in the employ of those companies, or select from their fleets the vessels best suited for the service; it would then be only those not running under contract for which it would be necessary to advertise. The Minister for War should, therefore, not merely have undertaken to supply the troops, but also to land them at the several ports in India.

Sir De Lacy Evans recommended the government to divert the force of gunboats, sixteen in number, and which had touched at Rio de Janeiro, on their way to China, for service on the Indian rivers; but the gallant general is evidently unaware of the fact, that they draw from seven to seven and a half feet water, and are therefore totally unfitted for the Indian rivers, which require vessels of from two to three feet draught. This unnecessary draught has rendered them of small service in China, as may be seen by perusal of the letter of the "Times'" correspondent, who points out the more general efficiency of an old paddle-wheel steamer called the "Coromandel," which had been purchased into her Majesty's service. It is impossible to inspect a military chart of India without observing that nearly every place of importance, especially in Bengal, is situated on the banks of one of the great rivers. Therefore an effective mode of river transit is the quickest and most efficient manner of strengthening our position in that country; for with such auxiliary aid a small force will be far more effective than a larger one, deficient in the means of rapid internal communication.—I am, &c.

JOHN COCHRANE HOSEASON,
COMMANDER, R.N.

LETTER III.

TRANSPORT OF TROOPS TO INDIA *VIA* THE ISTHMUS OF SUEZ.

There was a suggestion made by Sir De Lacy Evans in the House of Commons for the more rapid transit of troops to India, which I did not touch upon in my last letter. I allude to the proposition that we should avail ourselves of the route *viâ* the Isthmus of Suez. Whatever advantages this line may possess, it is still open to some objections, the chief of which is, that we can never avail ourselves of it but by sufferance. It is natural that the Pacha of Egypt should be disinclined to throw open the route, all rulers being averse to grant permission for foreign troops to traverse their territories. That concession, obtained for the transit of a cavalry regiment from India, when acting as allies of the Sultan, during the war with Russia, must be deemed an exceptional case, and cannot be taken as a precedent. In this light the noble lord at the head of the government appears also to have regarded the question from the nature of his latest communications to the House of Commons, for the route itself could scarcely be objected to at such a moment on the sole ground of expenditure. It will, therefore, be well to analyse the importance of this route *viâ* Suez to India, apart from any consideration of political difficulties.

In Wise's "Analysis of 100 Voyages to and from

India and China," it is stated that the distance passed over by a sailing vessel, in the voyage *viâ* the Cape of Good Hope to Bombay, is 13,000, and to Calcutta by the same route 14,000 miles. The steam route as proposed by me—*viâ* Sierra Leone, the Cape of Good Hope, and the Mauritius to Calcutta—is shown to be 11,578 miles, capable of being accomplished with suitable steamers in forty-three days.

The following are the distances *viâ* Suez to Bombay and Calcutta: —

	Miles.
Southampton to Gibraltar	. 1151
Gibraltar to Malta	. 981
Malta to Alexandria	. 819
Alexandria to Suez	. 238
Suez to Bombay, *viâ* Aden	. 2,972
Suez to Calcutta, *viâ* Aden and Point de Galle	. 4,757

Therefore the total distance from England to Bombay *viâ* Suez is 6,161, and to Calcutta 7,946 miles. If troops be removed from Gibraltar or Malta to India, these distances will be respectively shortened 1,151 and 2,132 miles. Nothing, however, can be more erroneous than the consideration of the mere geographical distances between any two places, as four-fifths of the steamers constructed in England cannot make a direct course from port to port, especially in navigating the India and China Seas. Any vessel can run before a monsoon and make a good voyage, more particularly when aided by a current varying from thirty to eighty miles a day; but it is very different when the same vessel has to make the voyage in the teeth of the monsoon, and against such powerful adverse current. Whilst at Bombay, I observed that no steamer employed in the conveyance of the mails, ever made a direct course to Aden during the full strength of the south-western monsoon, but stood away to the southward under steam and sail, and ultimately worked up to Aden. Captain Wilcox left Trincomalee on the 25th Sept. 1848, for Colombo, during the south-west monsoon, in command of her Majesty's steamer "Fury," the speed of the vessel in smooth water being about 260 miles a day. On his return, Captain Wilcox informed me that he had been very nearly obliged to put back, as the south-west monsoon blew with such force, and he encountered so heavy a sea, that the speed of the vessel through the water was reduced to 100 miles in twenty-four hours, whilst the observations proved that there had been an adverse current during the same period of eighty-four miles; thus the maximum speed of 260 miles a day was reduced by adverse wind and heavy sea to 100, and further reduced by a current of eighty-four miles to sixteen, the steamer only making good sixteen miles in twenty-four hours, whilst consuming forty or fifty tons of fuel. Two points, therefore, must ever be kept in view — the efficiency of the steamer, and the direction and force of the monsoon, with its consequent currents. Sailing vessels often take six weeks to go from Trincomalee to Colombo, in the south-west monsoon, and an equal time to go from Colombo to Trincomalee in the north-east monsoon, in consequence of the great circuit required to be taken to avoid the adverse winds and consequent strong currents. Either passage, however, with the monsoon in its favour, is accomplished in a few hours. The south-west monsoon, or rainy season, commences in April and ends in September; the north-east monsoon commences in October and ends in March. These periodical winds, steadily blowing in one direction for six months in the year, entirely influence the currents, which are more or less strong in different periods of the monsoons. I have myself found them to vary from thirteen to eighty-four miles a day, and for three consecutive days have encountered a current running at the rate of seventy-two miles. Such well-known truths ought long since to have satisfied the Board of Admiralty of the necessity of placing on an efficient footing every coaling establishment in the Indian and China Seas. Had proper measures been taken, even to provide for the war in Persia and China, we should have found no difficulty on the present emergency in moving any amount of troops by steam. It seems really astonishing that warlike operations could have been undertaken against such distant countries without any provision having been made for establishing efficient and rapid means of communication with the mother-country. There are just grounds for believing that the route *viâ* Suez has been as ill provided with fuel as that *viâ* the Cape of Good Hope, or as the coaling stations on the Mediterranean were on the declaration of the war with Russia. Before embarking in the war with Persia, arrangements could readily have been effected with the Directors of the Peninsular and Oriental Company, to have at their coaling stations an ample supply to meet any extraordinary demands, their boats and staff being at the disposal of the government, and thus every objection to the cost of establishing such depôts would be avoided. Those who have so sadly neglected to provide for the eventualities of the last, as well as of the present war, have pointed to the sacrifice of public money, in the interest of capital that would be sunk in the establishment of these depôts; but does not this argument hold good against every preparation for war during the time of peace? Why not then have saved the whole of the money expended, since 1842, on the naval service, viz., 133,000,000*l.*, and the 10,000,000*l.*

expended on subsidies to the mercantile steam marine? How can the advocates of this ill-judged economy defend the construction of our vast naval building establishments, together with the steam factories? What is to be said for the loss of money in the arsenal at Woolwich, the manufactory of arms at Enfield, the powder mills at Waltham, and the victualling establishments at Deptford, Portsmouth, and Plymouth? The late Sir Robert Oliver, Commodore of the Indian navy, was proud of exhibiting his justly valued store of 40,000 tons of coal at Bombay, calling them his black diamonds, which would one day or other be the saving of India; a fact which proves him to have been far more clear-sighted and efficient, from his practical knowledge, than those statesmen who, placed upon the vantage ground of political information and influence, yet failed to discern the danger, or to provide for the coming storm. Can this nation expect other than disasters when such lamentable mismanagement is still perpetuated? During the examination of the late First Lord of the Admiralty before the Committee of the House of Commons, Lord Seymour asked if the shortcomings of the Transport Service during the war with Russia, had ever been brought under the notice of the Admiralty. The reply was, "Not officially, certainly, by any naval and military authority." What Sir James Graham intended the committee to understand, the public, without doubt, would even now be glad to learn. The reply itself is no answer to the question, although consistent with the right honourable baronet's entire evidence. All parties will, I trust, agree with me in the necessity of demanding the exhibition of a little more public spirit, when a First Lord of the Admiralty can be heard to declare, that amidst all the notorious confusion and mismanagement at the Bosphorus, he had received no official intelligence relative to these distressing matters from any naval officer.

The mutiny in India broke out on the 10th of May, and the news reached England by telegraph on the 27th of June. Every hour was vitally important, for the south-west or favourable monsoon commencing in April is in full force in June and July, and terminates at the end of September. In the published tables of the outward voyages of the Peninsular and Oriental Steam Company's vessels, forty-one days or 984 hours are allowed for the voyage from Southampton to Calcutta, inclusive of stoppages. We may therefore reckon the voyage to be accomplished at the rate of eight nautical miles an hour. The last steamer, if leaving Calcutta on the 23rd of July, and arriving at Southampton on the 4th of September, must have taken forty-three days to perform the voyage, in the height of the south-west monsoon. It is important to bear in mind that this is the route that troops must take, for we are so accustomed to telegraphic messages *viâ* Sardinia, Trieste, and Marseilles, that we often fail to remember the time taken by the heavy mails and passengers following the sea route. In a City article of the "Times," it is stated that a proposal has been made to the East India House by the European and American Steam Company, to open this line of communication, and that the voyage to Bombay is expected to occupy nearly forty-five days. I have shown that the distance from Southampton to Bombay is only 6,161 miles, therefore it is clear that the voyage can only be computed to be performed against the north-east monsoon at the rate of $5\frac{7}{10}$ nautical miles an hour, stoppages included, which, considering the vessels are auxiliary screw steamers, may be a correct computation. I have demonstrated that the route *viâ* Sierra Leone, the Cape, and the Mauritius, by the best of the Cunard and Royal West India mail steamers, can be accomplished in forty-three days to Calcutta, without any transhipment, and consequently at less cost. To those not thoroughly conversant with steam navigation it is as well again to remark, that there are other and very important elements necessary to be taken into consideration, apart from mere geographical distance; for these two lines of communication stand in the ratio of about six to eleven thousand miles, and yet from the superiority of the line, the avoidance of transhipment, and the efficiency of the steamers, the longer voyage may be performed in less time than the shorter. In a general point of view there is no question as to which route ought to be efficiently organised, for the Cape line will strengthen our military hold over all our colonial possessions in those seas.

Propositions were made by Admiral Sir Charles Napier and others, for the transport of the troops by screw line-of-battle ships. There are, however, many important objections to the use of such vessels for this service. A war in Europe might occur during their absence, and it would not be a prudent act to despatch line-of-battle ships to so distant a station, with reduced complements. The large number of vessels required would also be another objection; while the crews needed for them would be taken from the strength of the naval service, instead of, by the hire of transports, gaining, in this emergency, an effective body of men and officers from the merchant service, to strengthen our position at Calcutta. The parliamentary abstract of the transport service during the late war with Russia, shows that 9,256 men formed the crews of the 217 steam and sailing vessels. If one-half this number be engaged in the transport of troops and stores to Calcutta, we shall have an accession of strength of 4,623 men, all well armed, and capable of acting in conjunction with our navy and army, in securing the base of our operations in Bengal.

The country, however, will naturally ask how it should so happen that our costly and powerful steam navy should again be found wanting in the hour of need. Where is that admirable organisation that was to serve to correct for the future all the errors of the late war? To what purpose has the coast guard been taken from the civil service, and placed under the Admiralty, if no naval squadron can be despatched from these shores for the relief of India before the middle of September? Why, on the 27th of June, the day that the intelligence of our disasters reached this country, were not five screw line-of-battle ships of small draught ordered for instant service in India? Why were not their crews increased by drafts to 1,000 or 1,200 men? And why was it not announced in parliament the same evening that the naval commanders-in-chief at the several ports had already received instructions to see that efficient men were selected for these increased complements — the ships stored and provisioned — three months' pay in advance given to the crews; — that four powerful steamers selected by the Admiralty from the contract packet service were fully prepared to tow the line-of-battle ships well out to sea — and that all should be in readiness to leave England at the latest by the 3rd of July? By such energetic measures, 5,000 seamen, efficient in every species of arm, would have reached Calcutta ere the north-east monsoon set in. These vessels of small draught would have arrived there when the Hooghly was swollen by the rains that had fallen during the south-west monsoon, a time the most favourable for taking up a position before that city. Their corps of marine engineers and ships' carpenters would have added great strength to the small naval arsenal at Calcutta; and during the voyage the men could have been effectively organised into regiments, and refreshed in their knowledge of field ordnance. The moral effect of the appearance of these five line-of-battle ships, in order of battle, before Calcutta would have been immense. They would at once have set free one-half, if not the whole, of the regiments detained as necessary to secure Calcutta as the base of our operations; and the first review of such force, in heavy marching order, complete in field guns and rocket brigade, upon the esplanade in Calcutta would entitle them, without a doubt, to be considered meet companions in arms for those splendid soldiers who have ever worn on their breasts in the field of battle, with honour to themselves and advantage to their country, the motto, "Per mare, per terram."

John Cochrane Hoseason,
Commander, R.N.

LETTER IV.

WHERE IS THE VAST NAVY OF GREAT BRITAIN.

I HAVE already, in previous letters, compared the merits of the several routes to India, *viâ* the Cape of Good Hope, and *viâ* the Isthmus of Suez, and have shown the enormous sacrifice of time and money in the transport of troops to the East, consequent on the utter neglect of the establishment on both these lines of efficient coaling stations. It is to the Admiralty alone that the country looks for the organisation of such stations; for Parliament, on the application of that board, has readily voted millions annually to ensure the perfection of our naval and mercantile steam marine, and this with the understanding that, in an emergency like the present, the resources of this great empire should be rapidly and efficiently developed. Sir Charles Wood and Mr. Bernal Osborne cannot, therefore, escape the responsibility attached to that high office, on the ground that as the East India Company are expected to defray the charge of the conveyance of our troops to the East, the failure of the rapid transport of these reinforcements must rest with them. The country is sensible that the East India Company will be unable to meet these heavy charges; but even were it not so, by the constitution of the Indian government as subordinate to the Board of Control, it is the home government alone which is directly responsible for the efficiency and the economy of every military measure.

Sir Charles may vainly labour to free himself from such responsibility; but Englishmen will judge for themselves, and when the honour of their country is so deeply involved, and when the life-blood of their countrymen and of their countrywomen is at stake, they will never rest contented with the mere sophistries of a schoolman.

Mr. Bernal Osborne has been kind enough to inform us, in his speech at Dover — although, as he states, without official authority — that the nation will be called upon to pay heavily for the means necessary to retain India. This is what every individual capable of comprehending our position must have anticipated. We could not be made to understand how the East India Company could defray these enormous charges out of their plundered exchequers ; nor could we fail to perceive that a long time must necessarily ensue ere the machinery for collecting the revenue would again be placed on an efficient footing. We knew that public confidence was entirely destroyed between the governors and the governed, — that an enormous amount of public and private property had been destroyed, — and consequently the resources from which a revenue could be derived, materially impaired.

The East India Company have enough to answer for without the shortcomings of the Ocean Navigation being also thrust upon them. Their neglect of the internal navigation of the immense Indian rivers has been followed by sufficiently lamentable consequences. With one of the finest internal means of water communication in the world, they have incomprehensibly neglected to hold out the necessary inducements to capitalists at home to develop these resources, and, consequently, have most unfortunately endangered the lives of both military and civilians, together with their families, over a vast extent of country, without securing to them any means of either advance or retreat. To duly appreciate the extent of this vital error on the part of the East India Company, a military map of India ought to be in the hands of every Englishman. He would then be enabled to observe, on tracing the course of the Ganges, the Jumna, the Goomty, and the Gogra rivers, that every city, town, or military post of Bengal is either on the banks, or within a few miles of these natural sources of communication. The genius of all conquerors or invaders of India fully estimated the value of such means of transit. But it has been reserved for the inmates of Leadenhall Street, with all these advantages urged upon them, and with so powerful an auxiliary as steam at their command, resolutely to neglect them.

There are no means by which the military power of a nation can be more efficiently developed than by a rapid mode of transit. It was an axiom with the great Napoleon, and one which he laboured to enforce upon all his generals, that the tide of war would invariably turn in favour of the nation which should concentrate on any given point, and in the least possible time, the largest available force. He hardly reckoned for success in any great measure on his own superior military talent, but invariably endeavoured to unite a force superior to that of his enemy on the most vital point of attack; and to effect this one great object he immediately stayed other military operations of minor importance, conscious of his power to resume them with greater advantage when, by a decisive blow, he had crushed any effort of an opponent which, if successful, would materially have affected his own security.

The absurdity of our continuing our puerile operations against China, when the safety of our Indian empire was at stake, has long been obvious to the nation at large. They naturally demand to know "Where is the vast navy of Great Britain in this emergency?" and why so great a force has been retained at Hong Kong, when the pages of every journal in England informed us that Havelock's gallant band of warriors were imperilled at Cawnpore, and our countrywomen and their children might be butchered at Lucknow?

The answer is, a baneful genius presides at the head of the Admiralty, and bows to some antiquated prejudices relative to the employment of seamen in any operations on shore, however these operations may serve to uphold the honour and power of the Crown.

In the late war with Russia the same baneful influence presided at the same board. The gigantic military resources of this country were paralysed for want of more professional knowledge and a little common sense. We perceive in our present emergency the same disastrous results flowing from the same causes. The nation has long been in possession of a statement denouncing the inefficiency of the present construction of the Board of Admiralty. The late Admiral of the Fleet left the result of his experience as a legacy to his country; and the following quotation from that important document will entirely account for all our shortcomings: — "As regards the proceedings of the board, when united for general business, I must premise that nothing can well be more contrary to reason, and I must say common sense, than for a person to be selected to preside at such professional board who is totally unable, and admits his inability to understand three-fourths of the professional statements, or even expressions contained in the various documents read on such occasions to the board, and which, therefore, the professional members of the board become obliged to occupy time in explaining and endeavouring to make him comprehend, which, nevertheless, cannot be always sufficiently effected."

Were it not for the disastrous consequences that have flowed, and which continue to flow, from such constitution of the Board of Admiralty, we should laugh at this interesting disclosure of the working of the system, as detailed to us by the gallant Admiral. The injurious effects, however, of the political constitution of the board do not rest here, for the naval officers who have lately held the most responsible posts under the civil chief, have notoriously been selected more for their political influence than for their professional talent, and have demonstrated in our late emergencies an utter incapacity to grapple with the difficulties of their position.

We are now once more crying for "Men — men — men." All our warlike operations are likely to be impeded for a want which positively does not exist. Men *can* be obtained, and in abundance, if only the standard of recruits be at once sufficiently lowered, and a liberal bounty given to both army and navy, but especially the latter. Let the nation but remember that the war expenditure between the years 1801 and 1815 was, in round numbers, 46,000,000*l.* for each year; and that for the years 1813 and 1814 the annual demand for the navy, army, and ordnance estimates exceeded 71,000,000*l.*; and for the year 1855, in the late war with Russia, 48,000,000*l.*; whilst we are informed, on the authority of Mr. F. Peel, the late Under Secretary of War, that the cost of each soldier for the year is only 30*l.*: therefore the charge for the maintenance of every 1000 men will be 30,000*l.*, and that of 100,000 men 3,000,000*l.* A bounty in addition of even 10*l.* a head to 100,000 men, would only add

1,000,000*l.* to the immediate demand upon the public purse. But if that sum be divided, as it ought to be, over the entire length of the service of the sailor or soldier, the annual charge would be but a fraction of that sum; and yet, with these facts so evidently apparent, our operations have been, and are likely to be, paralysed, because the leading members of the Board of Admiralty appear to be ignorant or regardless of the force of figures, or utterly incapable of applying them to any practical purpose.

It is a pitiable policy to put the nation to an enormous expense in the construction of great military establishments, and for the purchase of an immense amount of munitions of war, and yet demur to the fractional outlay necessary to secure the services of the sailor and soldier, at the very moment when their services are required to utilise the whole.

The standard height for the men ought always to be sufficiently lowered, and an adequate bounty given at the very commencement of a war; and the standard height be raised, and the bounty decreased, if found to be advisable, when the full force required has been completed. For, as I have heretofore stated while criticising our operations during the late war with Russia, "it is not so much the height as the *efficiency* of our sailors and soldiers that ought to have been considered. When large bodies of men have to operate together, their general effective organisation and thorough knowledge of the use of their arms ought to be the primary consideration." We know that the longer the men are together, the more efficient will be the organisation; and the larger the force brought into the field against an enemy, the greater will be the saving of life in battle. Humanity, economy, and policy point to an early development of all our resources; for apart from the mere annual cost of the war, we have to add the injury inflicted upon the country consequent on the paralysation of its commerce.

A commercial nation like England, possessed of an enormous mercantile marine, ought to seek to combine the services of the army and navy in close contiguity, and we should not for an instant permit any foolish prejudices to prevent the direction of their combined efforts to one common object. By reference to the official statistical abstract of 1856, we learn that the number of seamen employed in the home and foreign trade, exclusive of river steamers, amounted to 173,918 men, to which has to be added those employed in the fisheries. In the statistical tables published by Mr. W. F. Spackman, in 1843, he sums up these under the head of "Resources of the Royal Navy for seamen in case of necessity:"

Number employed in the merchant service . . .	210,198
Number employed in the herring, salmon, and other coast fisheries, about	220,000
Total number of men whose occupation is the sea .	430,198

To which we have to add some 30,000 or 40,000 Englishmen generally engaged in the American men-of-war and merchant service.

As the establishment of the "Excellent" gunnery system for musket, great gun, field gun, &c. &c., has for twenty-five years been in effective operation, there is no class of men who are so generally inured to the profession of arms as the seamen of this country,—thus constituting the most gigantic and complete corps of artillery in the world, ready made to our hand, to act in concert with our soldiers in any quarter of the globe. There is no country where their services could be more efficiently rendered than in India, in the navigation of the rivers, and in the occupation and defence of the important towns which are almost invariably situated on their banks. But the same unhappy infatuation still prevails, and we again owe it to those who paralysed our efforts in the late war with Russia, that thousands of our seamen are not at this moment rendering effective service in India. It was to the individual act of the Commander-in-Chief in the Black Sea that we owed the existence of the highly efficient Naval Brigade in the Crimea. To the individual act of Lord Elgin we now owe the existence of the small but effective naval force upon the Ganges.

JOHN COCHRANE HOSEASON,
COMMANDER, R.N.

LETTER V.

WHY ARE THE RIVERS OF INDIA NOT NAVIGATED?

As Sir De Lacy Evans has moved for and obtained Lord Palmerston's consent to an inquiry into the transport of troops to India, we shall, shortly after the meeting of Parliament, have a committee of the House of Commons to investigate this all-important question. It is to be hoped, however, that the gallant general will perceive the necessity of extending the field of inquiry; for it is of little moment that we should organise a more effective and rapid means of ocean communication with our extensive settlements in the East, if at the same time we neglect effectually the vast river navigation of India.

Parliament and the public have freely discussed the question as to how India is to be defended for the future, and the amount of European and native troops necessary for this service; but no one party has attempted to show how greatly our hold over that country will be consolidated, in a military point of view, by a rapid development of these natural channels of communication. Had a nation of barbarians held India for this last century, in the place of the Honourable East India Company, they could hardly have done less to develope these 10,000 miles of river navigation. All our efforts on the spot to reconquer the country have been paralysed, and the best and bravest of our land have been cruelly sacrificed, because the authorities have not opened, nor do they seem even now desirous to open, these beautiful and natural highways to steam.

What advantage will accrue to this country, from the vast amount to be paid for the hire of steam transports, when we learn from the correspondent of a morning contemporary, writing from Calcutta so late as November the 11th, that " the means of carriage, the great want of Government, do not improve; the six little steamers, with locomotives for engines, are ready, but they can tow nothing; if they can get themselves to Allahabad the feat will not be a slight one. The two dozen little river steamers I mentioned a month ago would be simply invaluable. It takes just a month to get 3,000 men to Allahabad; the troops, consequently, drop into the north-west by driblets, and we are not yet strong enough to strike those terrible blows which, by appealing to the imagination, crush ten rebels for every one slain." Again the same correspondent writes :—" Sir C. Campbell has demanded orders to hold or leave Lucknow. He wants reinforcements bitterly; the Sepoys, swarming in the city, are fighting as desperate Asiatics always fight. Where are the reinforcements to come from? Ten thousand men have arrived at Calcutta in the past fortnight, but there are no means of carriage." Here is a fruitful source for inquiry—What are the reasons that such a state of things is suffered to exist? I am sensible that the ocean navigation by steam to Calcutta can be steadily and regularly performed in less than one-half of the time lately taken on the average by the steamers despatched from England, but I feel certain that still greater comparative results will be realised by an efficient development of the internal means of transport. The reiterated reports of this defective means of transport might have prepared the nation for the reverse of

General Windham. Providence will not at all times help these who shamefully neglect means for their own preservation. The position of the Gwalior Contingent was one which no military man could have regarded without feelings of intense anxiety, when he learned that Sir C. Campbell was forced to concentrate nearly all his available force for the relief of Lucknow; and with 10,000 men at Calcutta, and Cawnpore on the banks of the Ganges, we had no effective flotilla on the river capable of transporting the necessary aid at such an important crisis. It is true that the Commander-in-Chief, Sir C. Campbell, did, on December 6th, totally defeat the same Gwalior Contingent. But what would have been the effect all over India had he not so done? A glance at the map will at once show what an important position Cawnpore is to hold in force; and yet, by the latest accounts from thence we learn—"The Commander-in-Chief is most anxious to get us up together. This Trunk-road is a curious scene; 250 men pass up daily by bullock, horse, and coolie dâk. Not a parcel can be got up from Calcutta by this route."

What a deplorable state of affairs! Let us abstain from further reflections on the want of ability displayed in the transport of men and materials during the Crimean campaign, when we have such facts as these on record. Faulty as were our arrangements then, we never appeared in so ridiculous a light as now; and this takes place in a country which we were so often told was equal to gigantic military operations. We now see the measure of the resources of that empire, eight months subsequent to the revolt; and yet so fertile are the districts which form the scene of operations that a commissariat can experience no difficulty in provisioning an army.

The Board of Control and Court of Directors have, however, placed an effectual drag-chain on all the most rapid means of opening up the country. For these last eight or ten years they have been projecting railroad schemes in India, which will not be perfected in a hundred years, in a country so utterly destitute of good cross roads and internal means of water communication. Messrs. Allen and Co. have just published a new map of these routes for India. I commend it to the attention of Sir De Lacy Evans and the members of his Committee. Nothing can be more amusingly instructive than an inspection of this well-executed work. We are informed that *red* denotes the finished railways, and we are nearly at a loss to discover where the colour *red* is to be found, in a map as numerously intersected as "Bradshaw's Railway Guide" with "sanctioned" railways. Yet all of these are guaranteed lines, receive five per cent. out of the revenues of India, although they may take centuries in their completion—a happy arrangement to reflect upon, with a rapidly-falling money market!

If I am rightly informed, the noble lord at the head of the government at Madras, is not well satisfied that the revenues of India should thus be taken to subsidise these stagnant companies. It ought to be remembered that every mile of railroad requires about 100 tons of dead weight in the shape of permanent way to be carried to the front; so that to complete 500 miles, 50,000 tons must be transported, in a country destitute of good cross roads, and without the means of cheap internal water transit.

It has been stated above that the government of India could only transport 250 men a day from Calcutta to Allahabad even under the late more perfect organisation: 250 a day is 7,500 a month, and, allowing

10 men to the ton, we have the astounding fact that 750 tons weight of soldiers is all that can be conveyed over the Grand Trunk-road of India in one entire month!

Mr. Mangles, the present chairman of the Court of Directors, is reported to have stated, in 1848, that of 300,000,000*l*. of money received from the natives of India, only 1,400,000*l* has been expended in roads and public works. We are now ten years older, and it was to be hoped wiser men, yet what has been done towards opening up this magnificent country? To any individual blessed with the smallest amount of practical knowledge, it would appear evident that in a vast empire like India, intersected with rivers, and with nearly every city and town of importance situated on their banks, the perfection of such river navigation ought to be the *primary* consideration. It is the rapidity and economy with which such operations can be executed that ought to commend them to any government sincere in its endeavour to open up such extensive territories. Yet in the midst of the confusion consequent on the neglect during peace to encourage every enterprise of this nature, I was not a little astonished, on lately visiting a celebrated steam-factory at Glasgow, to find that firm constructing for the East India Company engines for screw-gunboats which would require eight feet draught of water. Except during the freshes of the rainy season, no river in India has a greater depth than four feet, and to navigate effectually the majority of these rivers the vessels ought not to draw more than two feet water.

No possible reason can be assigned for the sacrifice of time and money in the construction of these vessels, for it is notorious that the Admiralty have had at command, ever since the conclusion of the late Russian war, a large number of similar vessels ready for sea, and which could have been despatched at a moment's notice to India, had it been possible to suggest any reasonable means of employment for them in that country.

The film has now fallen from the eyes of the public. Popular notions are by each succeeding mail blown to the winds. India is not that well-governed country that interested parties were desirous to lead us to believe. How, in the name of common sense, could it be expected to be so, when its rulers have been exclusive, and ever jealous of the intrusion of the skill and enterprise of their fellow-countrymen? As the East India Company found India, so are they likely to leave it. They have become possessed of the land without in any way improving the estate. But a great day is on the eve of dawning upon that country. India must be rapidly opened up and colonised. If men can spend a long life in India, like that distinguished officer Sir H. Havelock, for the benefit of the state, surely they can spend an equally long life in the same latitudes in the honest accumulation of wealth; in the introduction of a more perfect cultivation of the soil; in the construction of roads; and in the navigation of the great rivers.

But a military colonisation must be introduced simultaneously with the encouragement of the general public. We have now plenty of estates to confiscate. Why not form one colony at Bithoor, on the property of that miscreant Nana Sahib? The late curtailment of the period of the service of the soldier from twenty-one to ten years will greatly facilitate a system that has worked well in New Zealand and at the Cape of Good Hope. The soldier who enters the army at eighteen can now demand his discharge at twenty-eight, just as he attains the prime and strength of manhood. Then locate him in India, if deserving, with a good grant of land. Labour is cheap enough in that country to enable him to cultivate with profit the ground he has received as a grant. Settlements of this nature might be formed all over our territories, in the most healthy positions; and thus the cost of the return voyage of the soldier would be saved to the state, and the future tranquillity of the country inexpensively secured.

It may, no doubt, be objected to any scheme of permanent colonisation that the climate of India is not suited to the British constitution, and that the race would degenerate both physically and mentally in the course of years. But, although this objection may be justly applicable to certain parts of India, it is not applicable universally, for in India there are all kinds of climates, and that which is most congenial to the English constitution can easily be selected. The whole range of the Himalaya affords a fitting field for the successful introduction of the English race; and in the cultivation of tea, coffee, and other similar products for which this region is well adapted, remunerative employment for an English population may be found. There is, moreover, the rearing of sheep, Cashmere goats, and other animals, which will probably be found a profitable occupation; and there is every reason to believe that the range of the Himalaya is rich in minerals, especially in copper and gold. An English population established here would overawe the whole of India, and thus obviate future mutinies and revolutions. It would also secure that country against the hostilities or machinations which might be directed against it by Russia; and, in the bracing atmosphere of this elevated region, the Anglo-Saxon race would preserve its vigour and all its best attributes unimpaired.

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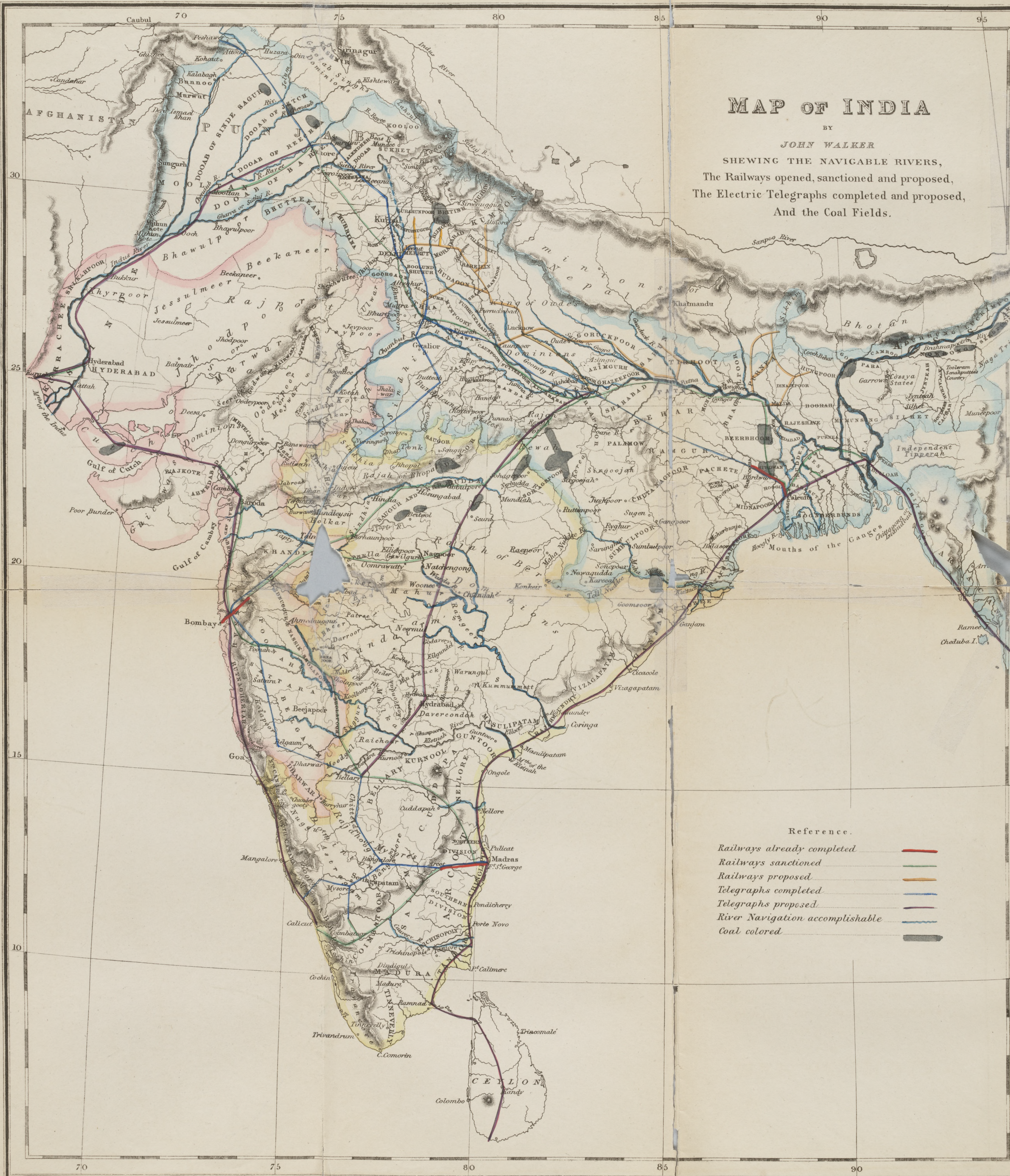

MAP OF INDIA

BY

JOHN WALKER

SHEWING THE NAVIGABLE RIVERS,
The Railways opened, sanctioned and proposed,
The Electric Telegraphs completed and proposed,
And the Coal Fields.

Reference.

Railways already completed
Railways sanctioned
Railways proposed
Telegraphs completed
Telegraphs proposed
River Navigation accomplishable
Coal colored

Engraved by J. & C. Walker.